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मानक

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“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

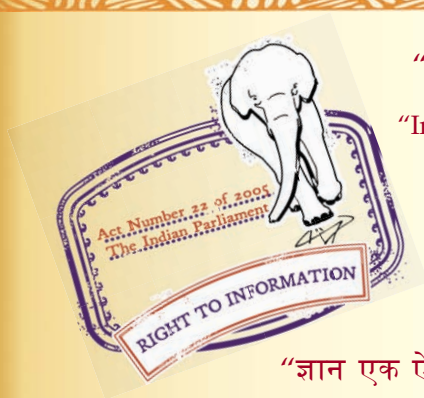
“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

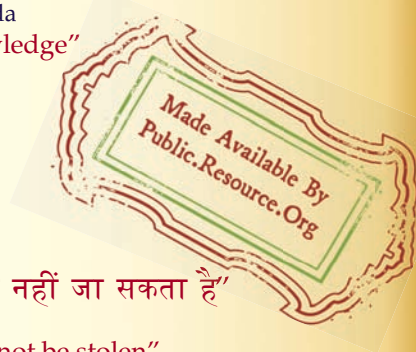
IS 3210 (1989): Engineers' Drawing Instruments - Drawing Pens [PGD 22: Educational Instruments and Equipment]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

ENGINEERS' DRAWING INSTRUMENTS —
DRAWING PENS — SPECIFICATION

(*First Revision*)

भारतीय मानक

इंजीनियरो ड्राइंग उपकरण — ड्राइंगपेन — विशिष्ट

(पहला पुनरीक्षण)

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards on 3 October 1989, after the draft finalized by the Optical and Mathematical Instruments Sectional Committee had been approved by the Light Mechanical Engineering Division Council.

Drawing pen is a drawing instrument used by the draughtsmen and engineers for drawing straight or curved lines in ink of uniform thickness. This standard covers the requirements for drawing pens having three commonly used types of nibs for drawing straight lines. For drawing straight or curved line with the help of straight or curved edge, it is preferable to have flat-bladed nibs to follow the guiding edge easily; while for free-hand drawing (at the time of inking streams and contours), pens having blade with outer surfaces rounded may be preferable to facilitate the easy twisting of the pen between the fingers for following irregular curves. Separate standards will be prepared to cover other type of drawing pens used for drawing curves or dotted lines.

This standard was originally published in 1965. This revision is based on further experience gained in the manufacture of drawing instruments and other developments in this field.

The main modifications are:

- a) Overall length of drawing pen has been modified from 125 ± 5 mm to 130 ± 1 mm and an additional size of 140 ± 1 mm has been included.
- b) Length of the pen part has been modified from 45 ± 2 mm to 45 ± 0.5 mm and an additional size of 32 ± 0.5 mm has been included.

In preparing this standard, due consideration has been given to manufacturing practices being followed in the country and assistance has been derived from DIN 58518 - 1976 Präzisions-Reisszeuge (P) Reissfedern (Ruling pen) issued by the Deutsches Institut für Normung (DIN).

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (revised)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

ENGINEERS' DRAWING INSTRUMENTS — DRAWING PENS — SPECIFICATION

(First Revision)

1 SCOPE

1.1 This standard covers the requirements of drawing pen having a handle and drawing nib. The drawing nib may be plain nib, shifting nib or a lifting nib for engineers' drawing instrument.

2 REFERENCES

IS No.	Title
IS 1068 : 1985	Electroplated coatings of nickel plus chromium and copper plus nickel plus chromium on iron and steel (<i>second revision</i>)
IS 2500 (Part 1) : 1973	Sampling inspection tables : Part 1 Inspection by attributes and by count of defects (<i>first revision</i>)
IS 3222 (Part 1) : 1989	Instrument screws — Specification : Part 1 Fasteners for drawing instruments (<i>first revision</i>)

3 MATERIAL AND HARDNESS

3.1 The material for manufacture of drawing nib shall be steel having a carbon content of

0.60 to 0.75 percent or a suitable grade of stainless steel.

3.2 The handle shall be made of light-weight and suitable material.

3.3 The drawing nib shall have minimum hardness of 230 HV.

4 DIMENSIONS

4.1 The dimensions for drawing pens shall be as shown in Fig. 1.

4.2 The figure is intended only to illustrate the dimensions and design details is left to the discretion of manufacturer so long as the specified dimensions are maintained.

4.3 The threads on drawing nib and in holder shall be M3 or M3.5.

5 DESIGNATION

5.1 Drawing pens shall be designated by the nominal size and number of this standard.

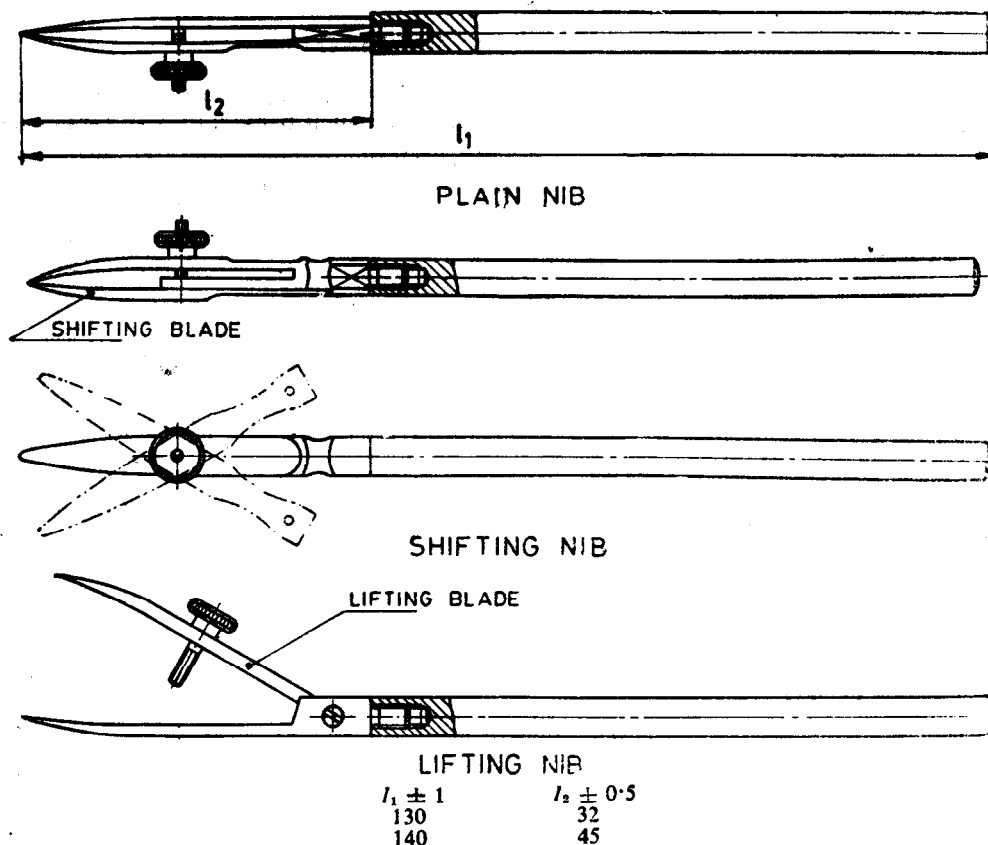


FIG. 1 DIMENSIONS FOR DRAWING PENS

Example:

Drawing pen having a nominal size 130 mm complete with screws shall be designated as:

Drawing pen 130 IS 3210

6 GENERAL REQUIREMENTS

6.1 The drawing nib shall have a well designed ink space between the two blades and their points rounded in an elliptical form for smooth working.

6.2 The lifting nibs shall be so constructed that it forms a spring in itself and remains tightly pressed against the adjusting screw throughout the range of its setting.

6.3 The plain and shifting nibs shall be rigid and be able to resist any movement caused by pressure, necessary for using against the guiding edge.

7 WORKMANSHIP AND FINISH

7.1 The drawing nibs shall be hardened, tempered, polished and honed.

7.2 The handles shall be smooth and well finished.

7.3 When drawing nibs are made from carbon steel, they shall be chromium plated to service Grade No. 2 according to IS 1068 : 1985.

8 SCREWS

8.1 The different screws used with drawing pen shall conform to the requirements specified in IS 3222 (Part 1) : 1989.

9 TESTS

9.1 Dimensional Test

The drawing shall be tested for conformity with the requirements of dimensions as specified in 4.

9.2 Hardness Test

The drawing nib shall be tested for hardness specified in 3.3.

10 MARKING

10.1 The drawing pens shall be marked with the manufacturer's name or trade-mark at a suitable place.

11 SAMPLING

11.1 Lot

In a consignment all the drawing pens of the same designation manufactured from the same material under similar conditions of production shall be grouped together to constitute a lot.

11.2 Unless otherwise agreed to between the supplier and the purchaser, the procedure given in IS 2500 (Part 1) : 1973 shall be followed for sampling inspection. The inspection level, acceptable quality level (AQL), and type of sampling plan to be followed for various characteristics shall be as given in 11.2.1 and 11.2.2.

11.2.1 For dimensions, designation, general requirements, and workmanship and finish, a single sampling plan with inspection level IV and AQL of 2.5 percent as given in Tables 1 and 2 of IS 2500 (Part 1) : 1973 shall be followed.

11.2.2 For hardness, a single sampling plan with inspection level II and AQL of 2.5 percent as given in IS 2500 (Part 1) : 1973 in Tables 1 and 2 shall be followed.

12 PACKING

12.1 Drawing pens shall be first wrapped in paper and then packed in a suitable carton.

12.2 Drawing pens may also be supplied as a part of an instrument in which case complete set may be supplied in a suitable box.

Standard Mark

The use of the Standard Mark is governed by the provisions of the *Bureau of the Indian Standards, Act, 1986* and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

Bureau of Indian Standards

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